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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/022,970	12/13/2001	Daniel W. Wong	1376.0100410	7194
34456	7590	01/06/2005	EXAMINER	
TOLER & LARSON & ABEL L.L.P. 5000 PLAZA ON THE LAKE STE 265 AUSTIN, TX 78746			HUNG, YUBIN	
			ART UNIT	PAPER NUMBER
			2625	

DATE MAILED: 01/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/022,970	WONG ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Yubin Hung	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-69 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-69 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. ____.  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____.   | 6) <input type="checkbox"/> Other: ____.                                    |

## **DETAILED ACTION**

### ***Oath/Declaration***

1. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

Specifically, the oath or declaration is defective because the filing date of the parent application (09/777,252) is incorrect. The correct date should have been 02/05/2001.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1 and 30-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Saha et al. (US 6,404,817).

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4. Regarding claim 1, Saha discloses

- receiving transformed error correction data  
[Fig. 4, refs. 402; Col. 3, lines 3-10 (indicating that the DCT results are transformed difference, or error, data, per P. 6, lines 3-4 of the application); Col. 10, lines 21-23]
- determining if an error characteristic of the transformed error correction data has occurred  
[Fig. 4, refs. 404, 416; Col. 10, line 41 - Col. 11, line 30 (error types); Col. 11, lines 31-43]
- providing an error indicator when it is determined an error characteristic has occurred  
[Fig. 4, refs. 404, 418; Col. 11, lines 31-43; Col. 11, lines 65-67; Col. 14, lines 21-24]

5. Regarding claims 30-32, Saha further discloses

- (claim 30) the transformed error correction data is related to multimedia data  
(claim 31) the multimedia data includes video data  
(claim 32) the transformed error correction data is discrete cosine transformed (DCT) data relating to video error correction data  
[Fig. 2: refs. 200, 201 (multimedia including audio and video); Fig. 4, ref. 410 and Col. 3, lines 5-9]

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. Claims 2, 3 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saha et al. (US 6,404,817) as applied to claims 1 and 30-32 above, and further in view of Paik et al. (US 5,216,503).

8. Regarding claims 2, Saha discloses all limitations of its parent, claim 1.

Saha does not expressly disclose

- the transformed error correction data includes multiple channels of transformed error correction data

However, Paik teaches/suggests a multi-channel compression system for coding multiple channels of compressed video stream. [Fig. 1, refs. 10-28; Fig. 5; Col. 4, lines 53-64.]

Saha and Paik are combinable because they have aspects that are from the same field of endeavor of video coding/decoding.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Saha with the teachings of Paik by including multiple channels of data. The motivation would have been to be able to achieve a targeted compression ratio without introducing visible artifacts into reconstructed video images, as Paik indicates in [Col. 1, lines 48-53].

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Therefore, it would have been obvious to combine Paik with Saha to obtain the invention of claim 2.

9. Regarding claim 3, and similarly claim 18, Saha further discloses

- the error characteristic includes an error type  
[Col. 10, line 41 - Col. 11, line 43]

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10. Claims 4-8, 11, 19-23, 25 and 33-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saha et al. (US 6,404,817) and Paik et al. (US 5,216,503) as applied to claims 2, 3 and 18 above, and further in view of Matsunoshita (US 5,835,691).

11. Regarding claim 4, and similarly claim 19, the combined invention of Saha and Paik discloses all limitations of its parent, claim 3.

The combined invention of Saha and Paik does not expressly disclose

- the error type includes overflow errors

However, Matsunoshita teaches/suggests the detection of overflow and underflow error conditions. [Fig. 2, ref. 208; Fig. 5, refs. 208, 209; Col. 12, lines 32-36; Col. 17, lines 11-16.]

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The combined invention of Saha and Paik is combinable with Matsunoshita because they have aspects that are from the same field of endeavor of video coding/decoding.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the combined invention of Saha and Paik with the teachings of Matsunoshita by including overflow and underflow as error types. The motivation would have been to be able to prevent such common error conditions or to correct the ill effects (e.g., loss of data) caused by such conditions.

Therefore, it would have been obvious to combine Matsunoshita with Saha and Paik to obtain the invention of claim 4.

12. Regarding claim 5, and similarly claim 20, Matsunoshita further discloses

- extraneous transformed error correction data is ignored when an overflow error has been determined  
[Col. 13, lines 48-50]

13. Regarding claim 6, and similarly claim 21, Matsunoshita further discloses

- the error type includes underflow errors  
[Fig. 2, ref. 208; Col. 12, lines 51-55]

14. Regarding claims 7-8, and similarly claims 33-35, Saha further discloses

- (claim 7) completing a set of transformed error correction data with predetermined values when an underflow has been detected and wherein (claim 8) the predetermined values include zeros  
[Col. 12, lines 12-14 and 25-27]

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15. Regarding claim 11, and similarly claim 25, Matsunoshita further discloses

- providing the error indicator includes generating an interrupt  
[Col. 15, lines 34-37]

16. Regarding claim 36, Matsunoshita further discloses

- the error characteristic includes errors during the submission of processed transformed error correction data  
[Col. 12, lines 15-31. Note that overflow condition occurs during the transferring (i.e., submission) of data]

\*\*\*

17. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Saha et al. (US 6,404,817) and Paik et al. (US 5,216,503) as applied to claims 2, 3 and 18 above, and further in view of Elkind (US 5,832,003).

18. Regarding claim 9, the combined invention of Saha and Paik discloses all limitations of its parent, claim 2.

The combined invention of Saha and Paik does not expressly disclose

- the error characteristic indicates a channel associated with the error

However, Elkind teaches/suggests identifying the channels that produce errors. [Col. 2, lines 66-67.]

The combined invention of Saha and Paik is combinable with Elkind because they have aspects that are from the same field of endeavor of video error checking.



At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the combined invention of Saha and Paik with the teachings of Elkind by indicating the channel that is associated with an error. The motivation would have been to be able to take corrective action only on the channels where the error occurs, for the obvious efficiency reason.

Therefore, it would have been obvious to combine Elkind with Saha and Paik to obtain the invention of claim 9.

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19. Claims 10, 12-14, 17, 24, 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saha et al. (US 6,404,817) and Paik et al. (US 5,216,503) as applied to claims 2, 3 and 18 above, and further in view of IBM-TDB (IBM TDB-ACC-NO: NN9405527. Title: "Method for Logging Concurrent Error Information", May 1994).

20. Regarding claim 10, and similarly claim 24, the combined invention of Saha and Paik discloses all limitations of its parent, claim 2.

The combined invention of Saha and Paik does not expressly disclose

- the error indicator includes an identifier of the error characteristic

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However, IBM-TDB teaches/suggests using identifiers to identify error characteristics.

[Disclosure text: lines 8-10.]

The combined invention of Saha and Paik is combinable with IBM-TDB because they have aspects that are from the same field of endeavor of error logging.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the combined invention of Saha and Paik with the teachings of IBM-TDB by including identifiers to identify error characteristics. The motivation would have been to be able to tell what specific error has occurred in order to apply the corresponding corrective action.

Therefore, it would have been obvious to combine IBM-TDB with Saha and Paik to obtain the invention of claim 10.

21. Regarding claims 12-14, 17 and similarly claims 26-27, IBM-TDB further discloses

- (claim 12) providing the error indicator includes setting a flag and  
(claim 13) separate flags are set for different error identifiers and  
(claim 14) separate flags are set for different channels and  
(claim 17) separate error indicators are provided for different error channels

[Disclosure text: lines 10-11. Note that since channels are associated with errors (different channels can have the same error), different channel-error combinations constitute different errors and it would have been obvious to one of ordinary skill in the art at the time of the invention to use separate flags for them. Further note that since providing error indicator includes setting a flag and separate flags

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correspond to different channels, it follows that error indicators are provided for different error channels]

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22. Claims 15-16 and 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saha et al. (US 6,404,817), Paik et al. (US 5,216,503) and IBM-TDB (IBM TDB-ACC-NO: NN9405527. Title: "Method for Logging Concurrent Error Information", May 1994) as applied to claims 10, 12-14, 24, 26 and 27 above, and further in view of Lamport et al. (US 5,138,615).

23. Regarding claim 15, and similarly claim 28, the combined invention of Saha, Paik and IBM-TDB discloses all limitations of its parent, claim 14.

The combined invention of Saha, Paik and IBM-TDB does not expressly disclose

- the separate flags are polled to determine an error has occurred

However, Lamport teaches/suggests polling error flags to determine an error has occurred. [Fig. 8, ref. 216; Fig. 12, ref. 382; Col. 36, lines 28-32.]

The combined invention of Saha, Paik and IBM-TDB is combinable with Lamport because they have aspects that are from the same field of endeavor of error detection.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the combined invention of Saha, Paik and IBM-TDB with the teachings of

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Lamport by polling error flags to determine an error has occurred. The motivation would have been polling is a well-established technique to determine the status of multiple entities (e.g., flags) and can be efficiently implemented.

Therefore, it would have been obvious to combine Lamport with Saha, Paik and IBM-TDB to obtain the invention of claim 15.

24. Regarding claim 16, and similarly claim 29, Lamport further discloses

- a driver is used to perform the polling  
[Col. 36, lines 38-40. Note that the pseudocode is consider a driver]

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25. Claims 37, 46 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saha et al. (US 6,404,817), in view of Mounes-Toussi et al. (US 6,615,375) and Elkind (US 5,832,003).

26. Regarding claim 37, Saha discloses

- performing error detection on received transformed data and determining if an error has been found in the transformed data  
[Fig. 4, refs. 404, 416, 418, 426, 426; Col. 11, line 31-Col. 12, line 41]

Saha does not expressly disclose

- determining if the error is associated with a set of protected data
- identifying a channel associated with the error if the error is associated with a set of protected data

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However, Mounes-Toussi teaches/suggests detecting (and recovering from) errors in protected data [Col. 2, lines 43-47] and Elkind teaches/suggests identifying channels associated with errors [Col. 2, lines 66-67].

Saha, Mounes-Toussi and Elkind are combined because they have aspects that are from the same field of endeavor of error detection.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Saha with the teachings of Mounes-Toussi and Elkind by detecting (and recovering from) errors in protected data and identifying channels associated with the errors. The motivation would have been to be able to apply corrective measure to only those channels that are associated with errors to improve efficiency.

Therefore, it would have been obvious to combine Mounes-Toussi and Elkind with Saha to obtain the invention of claim 37.

27. Regarding claim 46, Saha discloses a device that

- determine if an error has occurred, wherein the error is related to transformed error correction data  
[Fig. 4, refs. 404, 416, 418, 426, 426; Col. 11, line 31-Col. 12, line 41]
- apply corrective measures when an error has occurred  
[Col. 12, lines 11-13]

Note that while not expressly disclosed by Saha, It would have been obvious to one of ordinary skill in the art at the time of the invention to write a program of instructions to

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implement the above method and to store the program in a computer readable medium (e.g., a hard drive, a RAM or firmware) so that later on it can be retrieved and executed by the device.

28. Claim 57 is similarly analyzed and rejected as per the analyses of claims 37 and 46 above.

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29. Claims 38, 39 and 48-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saha et al. (US 6,404,817), Mounes-Toussi et al. (US 6,615,375) and Elkind (US 5,832,003), as applied to claims 37, 46 and 57 above, and further in view of Lamport et al. (US 5,138,615).

30. Regarding claims 38 (and similarly claim 48) and 39, the combined invention of Saha, Mounes-Toussi and Elkind discloses all limitations of its parent, claim 37.

The combined invention of Saha, Mounes-Toussi and Elkind does not expressly disclose

- (claim 38 and similarly claim 48) identifying an error flag which has been set and
- (claim 39) a plurality of flags is polled to determine an error has occurred

However, Lamport teaches/suggests polling error flags to determine an error has occurred. [Col. 36, lines 28-32.]

The combined invention of Saha, Mounes-Toussi and Elkind is combinable with Lamport because they have aspects that are from the same field of endeavor of error detection.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the combined invention of Saha, Mounes-Toussi and Elkind with the teachings of Lamport by polling error flags to determine an error has occurred. The motivation would have been polling is a well-established technique to determine the status of multiple entities (e.g., flags) and can be efficiently implemented.

Therefore, it would have been obvious to combine Lamport with Saha, Mounes-Toussi and Elkind to obtain the invention of claims 38, 39 and 48.

31. Regarding claims 49 and 50, Lamport further discloses

- (claim 49) the flag is cleared once it has been read  
(claim 50) individual flags of a plurality of flags are polled to  
determine if an error has occurred  
[Col. 36, lines 28-32]

32. Regarding claim 51, OFFICIAL NOTICE is taken that it is well known in the art to assign different flags to different error conditions. (The motivation for doing so would have been to be able to relate different corrective measure with different flags so that the best action can be taken accordingly.)

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33. Regarding claim 52, Saha further discloses

- the error-characteristics include error types  
[Col. 10, line 40-Col. 11, line30]

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34. Claims 40, 43, 44, 47, 55 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saha et al. (US 6,404,817), Mounes-Toussi et al. (US 6,615,375) and Elkind (US 5,832,003), as applied to claims 37, 46 and 57 above, and further in view of Matsunoshita (US 5,835,691).

35. Regarding claim 40, and similarly claim 47, the combined invention of Saha, Mounes-Toussi and Elkind discloses all limitations of its parent, claim 37.

The combined invention of Saha, Mounes-Toussi and Elkind does not expressly disclose

- receiving an interrupt indicating an error has occurred

However, Matsunoshita teaches/suggests receiving an interrupt indicating an error has occurred. [Col. 15, lines 37-46.]

The combined invention of Saha, Mounes-Toussi and Elkind is combinable with Matsunoshita because they have aspects that are from the same field of endeavor of error detection.



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At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the combined invention of Saha, Mounes-Toussi and Elkind with the teachings of Matsunoshita by receiving an interrupt indicating an error has occurred. The motivation would have been because interrupt generation/handling is a well-established technique to communicate among different computing entities the occurrence of some events (e.g., error conditions or I/O completion) and can be efficiently implemented.

Therefore, it would have been obvious to combine Matsunoshita with Saha, Mounes-Toussi and Elkind to obtain the invention of claim 40.

36. Regarding claims 43 and 44, Matsunoshita further discloses

- (claim 43) performing corrective measures to reduce errors related to new data  
(claim 44) corrective measures include clearing data buffers  
[Col. 13, lines 48-50. Note that discarding the coded data, i.e., clearing data buffers, is a corrective measure]

37. Regarding claims 55 and 56, Matsunoshita further discloses

- (claim 55) determining an error characteristic associated with the error  
(claim 56) corrective measures include clearing data buffers  
[Col. 13, lines 35-50. Note that the characteristic of the error is overflow. Note further that discarding the coded data, i.e., clearing data buffers, is a corrective measure]

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38. Claims 41 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saha et al. (US 6,404,817), Mounes-Toussi et al. (US 6,615,375) and Elkind (US

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5,832,003), as applied to claims 37, 46 and 57 above, and further in view of Vanstone et al. (US 6,141,420).

39. Regarding claim 41, the combined invention of Saha, Mounes-Toussi and Elkind discloses all limitations of its parent, claim 37.

The combined invention of Saha, Mounes-Toussi and Elkind does not expressly disclose

- identifying an encryption key assigned to the set of protected data

However, Vanstone teaches/suggests identifying an encryption key assigned to the set of protected data. [Col. 3, lines 14-18. Note that if the cipher text (i.e., protected data) contains error before encryption, then inherently the encryption key is required to before the existence of error can be determined.]

The combined invention of Saha, Mounes-Toussi and Elkind is combinable with Matsunoshita because they have aspects that are from the same field of endeavor of data security.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the combined invention of Saha, Mounes-Toussi and Elkind with the teachings of Vanstone by identifying an encryption key assigned to the set of protected data. The

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motivation would obviously have been to be able to decrypt the (encrypted) protected data in order to act upon them.

Therefore, it would have been obvious to combine Vanstone with Saha, Mounes-Toussi and Elkind to obtain the invention of claim 41.

40. Regarding claim 42, Vanstone further discloses

- identifying a channel assigned an encryption key register [Fig. 1, refs. 14, 16; Fig. 2, the block labeled "Public Key"; Col. 8, lines 44-46. Note that as a channel is associated with a register for encryption keys that are needed to decrypt the (encrypted) protected data, it inherently is necessary to identify such channels so as to be able to determine whether an error is present]

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41. Claims 45 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saha et al. (US 6,404,817), Mounes-Toussi et al. (US 6,615,375), Elkind (US 5,832,003) and Matsunoshita (US 5,835,691), as applied to claims 40, 43, 44, 47, 55 and 56 above, and further in view of Sampson (US 6,490,624).

42. Regarding claim 45, and similarly claim 58, the combined invention of Saha, Mounes-Toussi, Elkind and Matsunoshita discloses all limitations of its parent, claim 43.

The combined invention of Saha, Mounes-Toussi, Elkind and Matsunoshita does not expressly disclose

- corrective measures include re-authenticating encryption

However, Sampson teaches/suggests re-authentication upon errors. [Col. 14, lines 37-43.]

The combined invention of Saha, Mounes-Toussi, Elkind and Matsunoshita is combinable with Sampson because they have aspects that are from the same field of endeavor of error detection.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the combined invention of Saha, Mounes-Toussi, Elkind and Matsunoshita with the teachings of Sampson by re-authenticating upon errors. The motivation would have been because the presence of an error may indicate a foul play and therefore it is prudent to require re-authentication.

Therefore, it would have been obvious to combine Sampson with Saha, Mounes-Toussi, Elkind and Matsunoshita to obtain the invention of claim 45.

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43. Claims 53 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saha et al. (US 6,404,817), Mounes-Toussi et al. (US 6,615,375), Elkind (US 5,832,003) and Lamport et al. (US 5,138,615), as applied to claims 38, 39 and 48-52 above, and further in view of Matsunoshita (US 5,835,691).

44. Regarding claims 53 and 54, the combined invention of Saha, Mounes-Toussi ,Elkind and Lamport discloses all limitations of their parent, claim 52.

The combined invention of Saha, Mounes-Toussi ,Elkind and Lamport does not expressly disclose

- (claim 53) the error types include overflow errors
- (claim 54) the error types include underflow errors

However, Matsunoshita teaches/suggests the detection of overflow and underflow error conditions. [Fig. 2, ref. 208; Fig. 5, refs. 208, 209; Col. 12, lines 32-36; Col. 17, lines 11-16.]

The combined invention of Saha, Mounes-Toussi ,Elkind and Lamport is combinable with Matsunoshita because they have aspects that are from the same field of endeavor of video coding/decoding.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the combined invention of Saha, Mounes-Toussi ,Elkind and Lamport with the teachings of Matsunoshita by including overflow and underflow as error types. The motivation would have been to be able to prevent such common error conditions or to correct the ill effects (e.g., loss of data) caused by such conditions.

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Therefore, it would have been obvious to combine Matsunoshita with Saha, Mounes-Toussi, Elkind and Lamport to obtain the invention of claims 53 and 54.

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45. Claims 59, 62, 65 and 66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saha et al. (US 6,404,817), in view of Matsuoka (US 4,599,608) and Shirley (US 5,657,277).

46. Regarding claim 59, Saha discloses

- a data processor  
[Fig. 2, ref. 228]
- a memory having coupled to the data processor, the memory capable of storing code to control said data processor to:
  - determine if an error has occurred, wherein the error is related to transformed error correction data; and
  - apply corrective measures when an error has occurred;[Fig. 2, ref. 204. Note that it is obvious that the memory is capable of storing code to perform the recited functions.]
- hardware coupled to said memory, said hardware including;
  - an inverse transform component to:
    - receive transformed error correction data, wherein the transformed error correction data is related to a set of image data; and
    - process said transformed error correction data to generate inverse transformed results;
  - determine if an error characteristic of the transformed error correction data has occurred; and
  - provide an error indicator when it is determined an error characteristic has occurred; and
- a motion compensation processing component, wherein the motion compensation processing component to:
  - receive the motion compensation vector data, wherein the motion compensation vector data is related to said set of image data;
  - retrieve the inverse transformed results related to the set of image data, based upon the step of receiving motion compensation vector data; and
  - process the motion compensation vector data and the inverse transformed results to generate at least part of an image

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[Fig. 2, refs. 204, 228 (the "hardware"); Fig. 3, refs. 204, 228, 306 (embodies both inverse DCT and motion compensation); Fig. 4, refs. 306, 402 (receive transformed data), 404-410 (process received data), 416-426 (determine existence of error and provide indicator), 410-414 & 428 (motion compensation and image generation); Col. Col. 10, lines 21-40; Col. 11, line 31-Col. 12, line 50]

Saha does not expressly disclose that both the processor and the memory have an I/O buffer and that the memory's I/O buffer is coupled to that of the processor's.

However, Matsuoka teaches/suggests using a processor with an I/O buffer that is coupled to a bus [Fig. 2, ref. 5; Fig. 3, refs. 5, 10, 16, 20; Col. 3, lines 13-14] and Shirley teaches/suggests using a memory with an I/O buffer that is coupled to buses [Fig. 2, refs. 10-14, 22-28; Fig. 3, refs. 30, 31, 38; Col. 3, lines 24-47. Note that it would have been obvious to one of ordinary skill at the time of the invention to couple the respective I/O buffers via the bus(es) since each of them individually is.]

Saha is combinable with Matsuoka and Shirley because they have aspects that are from the same field of endeavor of data input and output.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Saha with the teachings of Matsuoka and Shirley by using processors and memories with I/O buffers and couple them via their respective buffers. The motivation would have been because processors and memories with I/O buffers are widely available and their use can eliminate the need for separate I/O buffer modules and thus can reduce cost.

Therefore, it would have been obvious to combine Matsuoka and Shirley with Saha to obtain the invention of claim 59.

47. Regarding claim 62, Saha further discloses

- the error characteristic includes an error type [Col. 10, line 41 - Col. 11, line 43]

48. Regarding claim 65, Saha further discloses

- the transformed error correction data includes DCT image data [Fig. 4, ref. 410 and Col. 3, lines 5-9]

49. Regarding claim 66, Saha further discloses

- the generated inverse transformed results represent a predetermined set of data when an error has occurred related to the transformed error correction data [Col. 12, lines 12-14 and 25-27]

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50. Claim 60 is rejected under 35 U.S.C. 103(a) as being unpatentable over Saha et al. (US 6,404,817), Matsuoka (US 4,599,608) and Shirley (US 5,657,277), as applied to claims 59, 62, 65 and 66, and further in view of Paik et al. (US 5,216,503).

51. Regarding claims 60, the combined invention of Saha, Matsuoka and Shirley discloses all limitations of its parent, claim 59.



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The combined invention of Saha, Matsuoka and Shirley does not expressly disclose

- the transformed error correction data includes a plurality of channels of transformed error correction data

However, Paik teaches/suggests a multi-channel compression system for coding multiple channels of compressed video stream. [Fig. 1, refs. 10-28; Fig. 5; Col. 4, lines 53-64.]

The combined invention of Saha, Matsuoka and Shirley and Paik are combinable because they have aspects that are from the same field of endeavor of video coding/decoding.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the combined invention of Saha, Matsuoka and Shirley with the teachings of Paik by including multiple channels of data. The motivation would have been to be able to achieve a targeted compression ratio without introducing visible artifacts into reconstructed video images, as Paik indicates in [Col. 1, lines 48-53].

Therefore, it would have been obvious to combine Paik with Saha, Matsuoka and Shirley to obtain the invention of claim 60.

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52. Claim 61 is rejected under 35 U.S.C. 103(a) as being unpatentable over Saha et al. (US 6,404,817), Matsuoka (US 4,599,608), Shirley (US 5,657,277) and Paik et al. (US 5,216,503) as applied to claim 60 above, and further in view of Elkind (US 5,832,003).

53. Regarding claim 61, the combined invention of Saha, Matsuoka, Shirley and Paik discloses all limitations of its parent, claim 60.

The combined invention of Saha, Matsuoka, Shirley and Paik does not expressly disclose

- the error characteristic indicates identifying a transformed error correction data channel associated with error

However, Elkind teaches/suggests identifying the channels that produce errors. [Col. 2, lines 66-67.]

The combined invention of Saha, Matsuoka, Shirley and Paik is combinable with Elkind because they have aspects that are from the same field of endeavor of video error checking.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the combined invention of Saha, Matsuoka, Shirley and Paik with the teachings of Elkind by indicating the channel that is associated with an error. The

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motivation would have been to be able to take corrective action only on the channels where the error occurs, for the obvious efficiency reason.

Therefore, it would have been obvious to combine Elkind with Saha, Matsuoka, Shirley and Paik to obtain the invention of claim 61.

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54. Claims 63, 64, 67 and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saha et al. (US 6,404,817), Matsuoka (US 4,599,608) and Shirley (US 5,657,277), as applied to claims 59, 62, 65 and 66 above, and further in view of Matsunoshita (US 5,835,691).

55. Regarding claim 63, the combined invention of Saha, Matsuoka, Shirley and Paik discloses all limitations of its parent, claim 62.

The combined invention of Saha, Matsuoka, Shirley and Paik does not expressly disclose

- the error type includes overflow errors

However, Matsunoshita teaches/suggests the detection of overflow and underflow error conditions. [Fig. 2, ref. 208; Fig. 5, refs. 208, 209; Col. 12, lines 32-36; Col. 17, lines 11-16.]

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The combined invention of Saha, Matsuoka, Shirley and Paik is combinable with Matsunoshita because they have aspects that are from the same field of endeavor of video coding/decoding.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the combined invention of Saha, Matsuoka, Shirley and Paik with the teachings of Matsunoshita by including overflow and underflow as error types. The motivation would have been to be able to prevent such common error conditions or to correct the ill effects (e.g., loss of data) caused by such conditions.

Therefore, it would have been obvious to combine Matsunoshita with Saha, Matsuoka, Shirley and Paik to obtain the invention of claim 63.

56. Regarding claim 64, Matsunoshita further discloses

- the error type includes underflow errors  
[Fig. 2, ref. 208; Col. 12, lines 51-55]

57. Regarding claim 67, Matsunoshita further discloses

- providing the error indicator includes generating an interrupt  
[Col. 15, lines 34-37]

58. Regarding claim 69, Matsunoshita further discloses

- corrective measures include clearing data buffers 2 associated with transformed error correction data  
[Col. 13, lines 48-50]

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59. Claim 68 is rejected under 35 U.S.C. 103(a) as being unpatentable over Saha et al. (US 6,404,817), Matsuoka (US 4,599,608) and Shirley (US 5,657,277), as applied to claims 59, 62, 65 and 66 above, and further in view of IBM-TDB (IBM TDB-ACC-NO: NN9405527. Title: "Method for Logging Concurrent Error Information", May 1994).

60. Regarding claim 68, the combined invention of Saha, Matsuoka and Shirley discloses all limitations of its parent, claim 59.

The combined invention of Saha, Matsuoka and Shirley does not expressly disclose

- Providing the error indicator includes setting a flag

However, IBM-TDB teaches/suggests setting flags. [Disclosure text: lines 10-11.]

The combined invention of Saha, Matsuoka and Shirley is combinable with IBM-TDB because they have aspects that are from the same field of endeavor of error logging.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the combined invention of Saha, Matsuoka and Shirley with the teachings of IBM-TDB by setting flags. The motivation would have been to be able to record additional about the error that can help in debugging events, as IBM-TDB indicates in lines 10-11 of the disclosure text.

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Therefore, it would have been obvious to combine IBM-TDB with Saha, Matsuoka and Shirley to obtain the invention of claim 68.

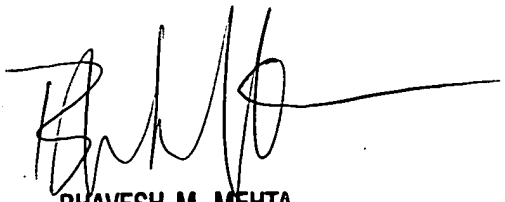
### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yubin Hung whose telephone number is (703) 305-1896. The examiner can normally be reached on 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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